REMARKS

The Examiner is thanked for the performance of a thorough search. Claims 1, 4, 5, 7–13, 15, and 17–22 are pending in this application.

I. INTERVIEW SUMMARY

Applicants thank the Examiner for the telephone interview conducted on June 1, 2010 (hereinafter "Interview"). Examiner Kong represented the USPTO. Applicants were represented by Karl T. Rees. The parties discussed general claim concepts with respect to the independent claims, and the cited references. In particular, Applicants' representative pointed out several of the differences between the claimed subject matter and the subject matter described in cited references. The Examiner explained his allegation that, due to a lack of specificity as to certain recited features, the references in combination allegedly showed the subject matter previously recited in Claims 1, 5, and 7. Applicants' representative disagreed, for at least the reasons set forth in Applicants' previous response. However, the Examiner suggested that amendments similar to the ones now presented may clarify the subject matter of the independent claims sufficiently to ensure that the independent claims are patentable over the cited references. Therefore, in the interest of expediting prosecution, Applicants hereby amend the claims based on the amendments discussed during the Interview. No agreement on the allowability of the claims was reached.

II. CLAIM OBJECTIONS

Claims 6, 13 and 21 stand under objection for informalities. Claims 6 and 13 are presently canceled, thereby rendering the objection as to Claims 6 and 13 moot. The amendments to Claim 21 fully address the remainder of the objection. Removal of the objection is requested.

III. ISSUES RELATING TO PRIOR ART

Claims 1, 4, 5, 7-10, 12, 13, 15 and 18-20 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over WO 95/01757 (hereinafter "*Borst*") and U.S. 6,027,216 (hereinafter "*Guyton*"). Claims 6, 11, 14 and 17 stand rejected as allegedly unpatentable over *Borst* in view of *Guyton* and further in view of EP 1056049 A2 (hereinafter "*Jones*"). Claims 21 and 22 stand rejected as allegedly unpatentable over *Borst* and *Guyton* in view of U.S. 6,611,283 (hereinafter "*Isonuma*"). The rejections are respectfully traversed.

Claim 1

Claim 1 is presently amended to recite a robotic manipulator comprising, among other elements:

> a motion sensor for sensing motion of a reference region of an object to be manipulated; and
> a controller for locking motion of the robotic manipulator relative to the reference region of the object based on the sensed motion;
> wherein the robotic manipulator, while locked in motion relative to the reference region, is arranged to dynamically change the reference region to which its motion is locked to reflect movement in a visual fixation point of a user, and the controller is arranged to lock the motion of the robotic manipulator relative to different motions sensed at different regions of the object as the user visually fixates on different points of the object

Borst, as modified by *Guyton*, fails to teach or suggest the robotic manipulator presently described in Claim 1. *Borst* describes a system in which a heart is monitored via video fed from cameras attached to robotic arms. *Borst* at 20:32–33. The surgeon is presented with a frozen video frame of a heart. *Id.* "Using a mouse or joy stick," the surgeon defines a "beacon" on the surface of the heart, as displayed in the video frame. *Borst* at 20:35–21:2. From then on, the "beacon" is tracked in video via a computer image analysis algorithm. *Borst* at 21:5–8. Signals indicating the movement of the beacon are fed to robotic arms with robotic surgical instruments, thereby allowing the robotic arms to "track the target" corresponding to the beacon "in real-

time." *Borst* at 23:2–8. As the Office Action acknowledges on page 6, *Borst*'s techniques do not involve tracking the visual fixation point of a user.

Meanwhile, *Guyton* describes techniques for tracking the gaze of a single eye. *Guyton* speculates at col. 36, lines 34–37, that such techniques "can be used for remote control manipulation of . . . remote controlled surgical instruments," but provides no description of exactly how and when such eye tracking techniques could actually be applied during surgery. The Office Action nonetheless alleges that *Guyton*'s speculative statement would have suggested to one skilled in the art to modify *Borst*'s techniques in such a manner as to arrive at the robotic manipulator of Claim 1, as formerly recited. The Office Action is mistaken, for at least the reason that *Guyton* does not teach or suggest how eye tracking could be implemented in *Borst*'s system, beyond the speculation that eye tracking may be used for remote control manipulation.

In any event, the combination of *Borst* and *Guyton* fails to teach or suggest that "the robotic manipulator, while locked in motion relative to the reference region, is arranged to dynamically change the reference region to which its motion is locked to reflect movement in a visual fixation point of a user" or that "the controller is arranged to lock the motion of the robotic manipulator relative to different motions sensed at different regions of the object as the user visually fixates on different points of the object," as now recited in Claim 1. For example, *Borst* does not teach or suggest that the beacon to which motion is tracked is "dynamically changed" while the robotic arms are locked in motion relative to the beacons. Even if one were to attempt to substitute *Guyton*'s eye tracking as input for defining *Borst*'s beacons, in place of *Borst*'s input from a mouse or joystick, one would only be able to set an initial beacon while the video frame is frozen. From that point, *Borst* appears to require static, unmovable beacons, or at best that the surgeon stop the surgery, freeze the video frame, and then select new beacons before proceeding to work on a new area. By contrast, Claim 1 recites that "the controller is arranged to

lock the motion of the robotic manipulator relative to different motions sensed at different regions of the object as the user visually fixates on different points of the object." *Borst* fails to teach or suggest the recited arrangement, and *Guyton*'s speculation as to possible applications of eye tracking technology does not suggest the modifications to *Borst* necessary to result in such an arrangement.

For at least the foregoing reasons, the combination of *Borst* and *Guyton* fails to provide the complete subject matter recited in independent Claim 1. Therefore, the combination of *Borst* and *Guyton* would not have rendered Claim 1 obvious under 35 U.S.C. § 103. Reconsideration is respectfully requested.

Claim 5

Claim 5 presently recites a method comprising:

> identifying a visual fixation point of a user observing a stereo image formed by visually superposing two mono images of an object by: presenting a first mono image of the object to a first user eye and a second mono image of the object to a second user eye, to thereby form the stereo image; tracking a first fixation point in the first mono image for the first eye and a second fixation point in the second mono image for the second eye; and calculating a three-dimensional fixation point on the object based on the first fixation point and the second fixation point;
> wherein the first mono image and the second mono image are different images.

The cited references fail to teach or suggest the method of Claim 5 for at least the reason that they do not teach or suggest, nor are alleged to teach or suggest, "tracking a first fixation point in the first mono image for the first eye and a second fixation point in the second mono image for the second eye" and "calculating a three-dimensional fixation point on the object based on the first fixation point and the second fixation point." As the Office Action acknowledges, *Borst* does not track fixation points for eyes in any sense. Meanwhile, both *Guyton* and *Jones* appear to track fixation points relative to a single image, not "a first mono image for the first

eye" and "a second mono image" for the second eye. *See, e.g., Guyton* at FIG. 21; *Jones* at FIGs 5, 7.

For at least the foregoing reasons, the combination of *Borst* and *Guyton* fails to provide the complete subject matter recited in independent Claim 5. Therefore, the combination of *Borst* and *Guyton* would not have rendered Claim 5 obvious under 35 U.S.C. § 103. Reconsideration is respectfully requested.

Claim 7

Claim 7 recites an apparatus comprising:

> first and second displays for displaying different mono images of an object to individual eyes, a stereo image presentation module for visually superposing the mono images to form the stereo image, a first and second eye tracker for tracking fixation points of each individual eye relative to the mono image displayed to that eye; and a processor for calculating a three-dimensional position relative to the object based on the fixation points

The cited references fail to teach or suggest the method of Claim 7 for at least the reason that they fail to teach or suggest that an apparatus comprises "first and second displays for displaying different mono images of an object to individual eyes" and "a first and second eye tracker for tracking fixation points of each individual eye relative to the mono image displayed to that eye." As discussed above with respect to Claim 5, the cited references appear to teach that both eyes are tracked in combination, relative to a single display, as opposed to individually with respect to individual displays. For at least the foregoing reasons, then, the combination of *Borst* and *Guyton* fails to provide the complete subject matter recited in independent Claim 7. Therefore, the combination of *Borst* and *Guyton* would not have rendered Claim 7 obvious under 35 U.S.C. § 103. Reconsideration is respectfully requested

Dependent Claims

Each of the remaining claims not discussed above are dependent upon one of Claims 1, 5, and 7. Thus, each of the remaining claims recites by dependency at least one patentable feature discussed above. Each of the additional references cited against the dependent claims, not discussed above, neither appears nor is alleged to teach or suggest the patentable features discussed above. Thus, each of the remaining claims is patentable over any combination of the cited references for at least the reasons discussed above. Removal of the rejections is requested.

Additionally, each of the dependent claims recites at least one additional feature that independently renders it patentable over the cited references. However, to expedite prosecution in light of the fundamental differences already identified, further arguments for each independently patentable feature of the dependent claims are not provided at this time. Applicants reserve the right to further point out the differences between the cited art and the novel features recited in the dependent claims.

IV. CONCLUSIONS & MISCELLANEOUS

For the reasons set forth above, all of the pending claims are now in condition for allowance. The Examiner is respectfully requested to contact the undersigned by telephone relating to any issue that would advance examination of the present application.

A petition for extension of time for two (2) months and otherwise to the extent necessary to make this reply timely filed, is hereby made. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,
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